DOCUMENT RESUME

ED 399 920 HE 029 556

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TITLE Literature Update on Academic Performance of Minority Baccalaureate Nursing Students.
PUB DATE [96]
NOTE 17p.
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Achievement; Admission Criteria; Bachelors Degrees; Class Rank; College Students; *Degrees (Academic); Grade Point Average; Higher Education; *High Risk Students; Learning Strategies; Licensing Examinations (Professions); Literature Reviews; *Minority Groups; *Nursing Education; Nursing Research; *Predictor Variables; School Counseling; Test Results

ABSTRACT

This report reviews the literature on minority nursing students including the identification of high risk students, admission policies, evaluation methods and prediction of success of nursing students since the mid-1980s. The review finds that many variables have been used in research studies to identify at-risk students, to predict nursing program success as well as to predict success on the National Council Licensure Examination for Registered Nurses (NCLEX-RN). Results revealed that: (1) high school rank and biology and English scores predicted success best for associate degree students; (2) that the number of science courses taken and language skills predicted academic success best for students in a diploma program; and (3) that the Mosby Assess Test and grade point average in clinical nursing courses best predicted baccalaureate student success. Specific strategies are suggested to improve the academic success of at-risk and minority nursing students and address test taking strategies, learning styles, relaxation techniques, advising, counseling and NCLEX-RN reviews. The report concludes that no single instrument or set of variables have been recognized as a predictor of success in the nursing courses or for any specific group of students. (Contains 42 references.) (CK)

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Literature Update on Academic Performance of Minority Baccalaureate Nursing Students

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General Literature Overview

Traditionally, nursing education programs have had high student attrition rates with baccalaureate programs having higher attrition rates than the associate degree and diploma programs. The topic of decreasing student attrition rates in baccalaureate nursing programs was addressed in the literature in the early 1970s. It was not until the late 1970s and early 1980s, however, that academic achievement variables, such as the identification of high risk students, admission policies, evaluation methods and prediction of success of nursing students appeared in the nursing literature. Since the mid-1980s, there have been numerous studies published using many different variables to predict graduates' success on the National Council Licensure Examination for Registered Nurses (NCLEX-RN). There were relatively few articles which specified how to facilitate student success in nursing programs. The literature was also incomplete in research studies pertaining to student success in nursing programs for academically disadvantaged and minority students. Only two research studies were found that indicated use of the Nelson-Denny Reading Test and other nursing standardized tests to predict graduates' success on the NCLEX-RN (Foti and DeYoung, 1991 and Wolahan and Wieczorek, 1991).

Academic Achievement

Several recent studies (Foti and DeYoung, 1991, Jenks, Selekman and Paquet, 1989, Poorman and Martin, 1991, Wolahan and Wieczorek, 1991, and Yang, Glick and McClelland, 1987) have used a number of variables to predict student completion of the nursing program and success on the NCLEX-RN. Some of the variables used were ACT scores, high school rank, grade point average (GPA) of high school courses, college GPA, GPA of science courses, GPA of nursing courses and a variety of pre-admission criteria.

The community colleges in Ontario, Canada examined the issue of the unsuccessful nursing student when one-third of their students failed to complete the diploma nursing program (Weinstein, Brown and Wahlstrom, 1980). In their study, Weinstein, Brown and Wahlstrom examined the possibility that high attrition was related to admission procedures. Transcripts, application data, interview procedures and tests of language and mathematical skills were analyzed. Results of this study concluded that the best predictor of success was the number of pure and applied science courses the student had taken. High school English and mathematical achievement were also proven to be good predictors of success. According to this study, the pre-admission interview was not a predictor; however, attrition was lower in the student groups who had completed the interview process. The authors attributed this finding to the interview assisting students to verify their career choice. Social adjustment tests administered in this study showed no effect on the attrition rate; however, testing for language and mathematical skills proved to be useful, along with transcript data, when considering a student for the nursing program. According to this study, the best

preparation for success in this particular diploma nursing program lay in the inclusion of language skills and the pure and applied science courses as pre-requisites to the program (Weinstein, Brown and Wahlston, 1980).

A study to predict academic achievement of associate degree nursing students was completed by Oliver (1985) using a community college program in the southeastern portion of the United States. The first quarter GPA was analyzed along with eleven variables to find the best predictors of success for this associate degree nursing program. The study concluded that high school rank, biology and English grades predicted success for this program. In addition, the author reported that the results showed the successful student to be older and that single variables rather than "cluster variables" were better predictors. These results were in agreement with other predictive studies conducted with data from other types of nursing programs.

Seither (1980) did a predictive study with baccalaureate nursing graduates and found the GPA in the biological sciences to be a predictor of achievement in baccalaureate nursing education. She also noted that the inclusion of the behavioral sciences GPA improved the prediction. As with other predictive studies, this study also verified that high school rank was a consistent predictor of GPA prior to admission to the nursing program. Grade point average of the nursing courses correlated highly with the cumulative GPA in this study. The results of this study agreed with other research in that vocational interest, class size, and job performance after graduation were not predictive of achievement in nursing education.

Yang, Glick and McClelland (1987) supported the view that baccalaureate nursing success and NCLEX-RN success could be predicted by admission criteria data including high school rank, ACT scores and grade point average for

chemistry, biology, sociology and pre-nursing course grades. These authors suggested identifying the students at-risk and correcting their difficulties prior to taking the NCLEX-RN, but no suggestions were given as to how or by what methods faculty members could accomplish these outcomes.

The College Level Academic Skills Test (CLAST) was used as a predictor of academic success for baccalaureate nursing students in a study conducted by Safian-Rush and Belock (1988). The standardized exam tested the students' abilities in math, reading, writing and essay writing and was required by the school for entrance into the junior year of the nursing program. The results of this study showed a positive correlation of the CLAST scores with the licensure exam scores. The ethnicity, age and sex analyses showed that "age correlated highly with the CLAST, GPA and licensure exam score." The authors found that the older the student, the higher the CLAST scores, GPA and licensure exam scores. They also reported that sex and ethnicity did not correlate with any of the variables; however, their sample size was small.

In an article by Mitchell (1988), Alverno College was cited as a present day example of nontraditional education. Mitchell suggested that nursing education should develop different educational models in order to decrease attrition rates and to serve nontraditional students more effectively. Rosenfeld (1987 and 1988) reported that nursing students appeared to be having more difficulty with passing nursing courses compared to students in the past. In her article, Rosenfeld indicated that academic, as well as emotional support, is needed for students to be successful in nursing education today because of the increase in minority and immigrant students entering nursing programs. These students generally need more remedial assistance due to their educationally disadvantaged backgrounds..

Senior baccalaureate nursing students were subjects in Talarczyk's (1989) predictive study. Aptitude, previous achievement and cognitive style were variables used to predict academic achievement in nursing courses, specifically senior level medical-surgical and psychiatric nursing. In contrast to Seither (1980), this study showed that aptitude, pre-admission cumulative GPA, sciences and math GPA, behavioral science GPA, and cognitive style did not predict achievement in the senior level courses. However, the junior level GPA in nursing courses was predicted by the variables used in the study (Talarczyk, 1989).

Jenks, Selekman, Bross and Paquet (1989) found that clinical nursing course grades correlated with the NCLEX-RN results. However, pre-admission criteria did not correlate with success on the NCLEX-RN. The authors of this study suggested that there is a need for future research to identify needed interventions that would improve the academic performance of at-risk students.

One study approached the attrition problem in baccalaureate nursing education by comparing Tinto's (1987) model of college student departure variables to nursing students. Benda (1991) used pre-admission ACT data, a student attitude questionnaire and retention data to test the relationship of Tinto's college departure variables with freshmen, sophomore and junior baccalaureate nursing students. As with Tinto's model and other studies, the highest attrition occurred during the freshman year. This group of students had a lower attrition rate than the national average for baccalaureate students. Therefore, the pre-admission, social and academic variables significant to retention applied to those freshman students. Benda reported that her study did not reveal a "set of criteria" to be used for attrition prediction of baccalaureate nursing students. However, her study did reveal that students who show apathy toward completion of academic assignments, who discuss leaving school with others, have

excessive responsibilities, are not certain of their career choice and do not register for the next semester are at high risk for leaving the nursing school (Benda, 1991).

Similar concerns for freshman nursing students remaining in school were discussed in an article by Cameron-Buccheri and Trygstad (1989). Their retention strategies included new student orientation workshops, early intervention for personal and academic difficulties, tutoring for traditionally difficult science courses and support group sessions for new students. Their article also included a specific list of suggestions to increase retention of freshman nursing students.

A qualitative study to obtain freshman baccalaureate students' perceptions of their academic and nonacademic experiences was conducted by Sherrod, Harrison, Lowery, Wood, Edwards, Gaskins and Buttram (1992) to determine the implications for nursing student retention. Their study suggested that retention programs could be developed according to students' specific needs. The students' needs were identified through interviews which specified their positive and negative college experiences at the end of the freshman year. Based on their responses academic and non-academic problems became evident and were addressed through student services. Students in this study also provided suggested solutions to problems in both the academic and non-academic areas.

Another study to predict NCLEX-RN results for baccalaureate students was conducted by Heupel (1994). Heupel reported that all GPAs correlated with NCLEX-RN scores and the "best set" of predictors were grades from several nursing courses and the junior level GPA. Therefore, it was proposed that

success on the NCLEX-RN could be determined by the end of the junior year and reviews could be implemented for the students who might be at-risk for failing the exam.

Academically Disadvantaged Students

In their article, Moore and Pentecost (1979) described a program to assist educationally disadvantaged nursing students. The program included academic advising, personal counseling, learning assistance and tutoring. The authors did stress that for these students "academic advisement" was the basis for their particular project. The conclusion of their project evaluation was that educationally disadvantaged students could be successful in nursing when provided with a support program.

Beeker (1985) described a method for assisting learning disabled students to complete a college nursing program and to pass the NCLEX-RN. A series of tests were used to diagnose the student's learning problems. Then, using the student's learning style preference, individual study strategies were adapted to meet the student's learning needs.

Burris (1987) described a support program for educationally disadvantaged students using the Nelson-Denny reading comprehension score to identify at-risk nursing students and to train faculty to tutor them. This was a pilot study and preliminary evaluation information for the one-year trial suggested that a correlation exists between the support program and the success of the at-risk students on completing the nursing program.

Another article by Campbell and Davis (1990) provided information on a support program for at-risk nursing students that included the Nelson-Denny Reading Test and the Watson-Glaser Critical Thinking Appraisal to determine the

student's needs. A specific program was developed for the at-risk students which included time management, reading comprehension, vocabulary and problem solving activities, self-enhancement, counseling and faculty support.

Hughes (1988) described the nursing resource center approach to providing services for at-risk nursing students. A specific program was designed for at-risk students which included counseling, tutoring, referrals as needed and media services. Prior to taking the NCLEX-RN, senior students were given the Mosby exam to diagnose their weak content areas, then a plan of study was developed which included content reviews, test taking and relaxation sessions.

Minority Students

An article by Wilson (1990) related that minority students have higher attrition rates than white students. According to Colling (1984), minority students may need on-going assistance with academic skills, in addition to tutoring, particularly in the science and nursing courses. Thus, minority students have low graduation rates. Wilson (1990) reported that only 24% of black students earned a college degree after six years and that 63% of black students dropped out of college and did not return. These figures are substantiated for nursing students by Tucker-Allen (1989) who reported American Nurses' Association figures of 1983 that only 13.5% of the nation's nursing admissions were minority students and only 8.3% were black students. She also stated that of the number of minority students who do enroll in nursing "a significant number fail to graduate."

Outtz (1979) conducted a study to establish predictors of success on the State Board Exams for black graduates. The findings of this study showed that the college cumulative GPA was the best success predictor for all five areas of the State Board Exams. In contrast, Boyle (1986) reported that the ACT score best predicted State Board Exam results for minority baccalaureate students.

Minority baccalaureate nursing students were the subjects in a success program described in an article by McNally (1979). A program was developed to assist the students in the areas of learning, civics and personal skills, cultural awareness and professional competencies. This program was based on specific objectives using pre-admission procedures, counseling, remediation, student learning theories and faculty development. Success was defined for this program as an increase in the number of students who completed the nursing program.

In 1988, Allen, Nunley and Scott-Warner conducted a study utilizing a questionnaire which was administered to black baccalaureate nursing students and black and white faculty members to identify recruitment and retention problems for black students. The findings of this study were consistent with the problems identified in the nursing literature for minority students. Problems identified were inadequate high school preparation, particularly in science and English, inadequate recruitment efforts by schools of nursing, not enough financial aid and perceptions of hostile university environments. This study by Allen, et al., was also in agreement with the literature in describing the non-academic problems minority students encounter, including feelings of alienation and loneliness, failure to seek help or counseling, cultural/racial identity adjustments, inadequate financial aid and lack of family or spousal support. A specific list of solutions to the problems was included in the article.

Interventions used in a retention program for minority nursing students at Indiana University included test taking strategies, study skills, financial assistance and an early academic warning system. This program also used faculty, students, members of professional organizations, community and alumni members as tutors in their tutoring program (Sutton and Claytor, 1992).

Though not research studies, articles were found in the literature describing suggested faculty approaches to teaching minority students (Claerbaut, 1980, and Johnson, 1989), and suggestions for recruitment and retention of minority nursing students (Walker, 1987, and Crawford and Olinger, 1988). Understanding the characteristics of minority students, developing appropriate teaching strategies and providing academic and personal support programs are common suggested strategies found in the literature for assisting minority students to be successful in nursing course work and on the licensure examination.

Andrews (1992) confirms these needs in nursing by reporting in her article that in the year 2000 minorities will make up a quarter of the U.S. population and by 2080 minority groups will be the majority by comprising 51.1% of the population. Andrews suggested several ways for the nursing profession to face this challenge in the 21st century. The suggestion for nursing education was to include cultural concepts into the curriculum.

Summary

The nursing literature review indicated that many variables have been used in research studies to identify at-risk students, to predict nursing program success as well as to predict success on the NCLEX-RN. In predicting academic success, high school rank, biology and English scores predicted success better for associate degree students. The number of science courses taken and language skills predicted academic success best for students in a diploma program. Baccalaureate student success was best predicted by GPA in clinical nursing courses and by the Mosby Assess Test.

Some authors of the nursing research studies offered suggestions for interventions to be used in providing academic assistance to at-risk students;

however, there were no suggestions as to who should provide such assistance other than academic advisors and tutors. Information was found in the nursing literature pertaining to the use of specific strategies that could improve the academic success of at-risk and minority nursing students. However, strategies mentioned in the literature were common ones, such as test taking strategies, learning styles, relaxation techniques, advising, counseling and NCLEX-RN reviews. Retention programs that have been successful in assisting nursing students are described in the literature as being very specific to the school/university goals and the student population (Sutton and Claytor, 1992). Specific retention programs may not be successful when used in other university settings with different student populations (Sherman, Giles and Williams-Green, 1994).

Although the Mosby Assess Test appears to predict success on NCLEX-RN for baccalaureate students (Hughes, 1988), it has not been substantiated that these results would hold true for at-risk and minority students. As yet, there is still no single instrument or set of variables recognized as a predictor of success in the nursing courses for any group of students. Further research in this area is needed.

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